

information, which relates to a use history of devices on the network,

wherein, in a case in which the number of devices that satisfy the search condition is zero, the adding step adds information of the device with a high frequency of use discriminated in the discriminating step to the search result.

23. (Amended) A memory medium according to claim 22, wherein, in a case in which a number of devices identified in the search result is at least equal to a predetermined value, the adding step includes acquiring dynamic information from a device that satisfies the search condition and adding the dynamic information to the search result.

#### REMARKS

This application has been reviewed in light of the Office Action dated June 25, 2002. Claims 1-7, 9-15, and 17-23 are presented for examination and have been amended as to formal matters and/or to define more clearly what Applicants regard as their invention. Claims 8, 16, and 24 have been cancelled, without prejudice or disclaimer of the subject matter presented therein, and the subject matter of those claims have been incorporated into Claims 6, 14, and 22, respectively. Claims 1, 6, 9, 14, 17, and 22 are in independent form. Favorable reconsideration is requested.

An Information Disclosure Statement (IDS) and a corresponding PTO-1449 form were submitted on August 1, 2000, as evidenced by the copy of the returned receipt postcard bearing the stamp of the U.S. Patent and Trademark Office attached to the present

Amendment. Applicants respectfully request the Examiner to return an initialed copy of the PTO-1449 form, indicating that the reference cited thereon has been considered. Applicants note that the Office Action Summary indicates that a PTO-1449 form is attached thereto. However, the Office Action received by Applicants' attorneys does not, in fact, have such an attachment. For the Examiner's convenience, a copy of the IDS also is appended to the present Amendment.

The Office Action rejected Claims 1, 6, 9, 14, 17, and 22 under 35 U.S.C. § 103(a) as being unpatentable over the publication "RFC 1777 -- Lightweight Directory Access Protocol" (Yeong et al.). Claims 2-4, 7, 8, 10-13, 15, 16, 18-21, 23, and 24 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Yeong et al. in view of the article "Resource-Driven Resource Location" (Wills et al.).<sup>1</sup> Applicants submit that independent Claims 1, 6, 9, 14, 17, and 22, together with the claims dependent thereon, are patentably distinct from the cited prior art for at least the following reasons.

The aspect of the present invention set forth in Claim 1 is directed to a device searching apparatus that searches for at least one device on a network. The apparatus includes management means, input means, search means, recognition means, output means, and control means. The management means manages a database that includes identification information for identifying a device on the network and attribute information associated with the device. The input means enters a search condition about a device function, so that a desired device on the network may be searched for. The search means searches for a device from the database that

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<sup>1</sup> Although Claim 5 was not addressed in the Office Action, it is assumed that Claim 5 stands rejected under 35 U.S.C. § 103(a) over Yeong et al. in view of Wills et al.

satisfies the search condition. The recognition means recognizes whether a number of devices that satisfy the search condition is greater than a predetermined number. The output means outputs a search result that includes identification information and attribute information of a device that satisfies the search condition. In accordance with a recognition result of the recognition means, the control means controls the search means to request an additional search for additional attribute information of the device.

Yeong et al., as understood by Applicants, discloses an access protocol (LDAP) of a directory database. Wills et al. is understood to disclose a method for locating resources within a LAN. Applicants submit that a combination of Yeong et al. and Wills et al., assuming such combination would even be permissible, would fail to teach or suggest a device searching apparatus that includes "recognition means for recognizing whether a number of devices that satisfy the search condition is greater than a predetermined number," and "control means for controlling said search means to request an additional search for additional attribute information of the device, in accordance with a recognition result of said recognition means," as recited in Claim 1.

In Yeong et al., a "sizelimit" defined in the LDAP is not a limit of the number of devices or attributes that satisfy a search condition, but instead is understood to be a limit of the data size of a response to a query of the LDAP (see the definition of "sizelimit" on "page 8" of Yeong et al.). Yeong et al. is understood to disclose a technique for sending all information satisfying the query to the requestor from a directory server. Thus, Applicants submit that Yeong et al. fails to teach or suggest the recognition feature of Claim 1, in which it is recognized

whether the number of devices that satisfy the search condition is greater than a predetermined number. Further, Applicants respectfully submit that a person of ordinary skill in the relevant art would not be able to practice the invention as claimed in Claim 1 by combining a "sizelimit" restriction technique, as disclosed in Yeong et al., with filtering means, as suggested in the Office Action. Moreover, Yeong et al. fails to disclose the feature of controlling the search means to request an additional search for additional attribute information of the device, in accordance with a recognition result of the recognition means, as claimed in Claim 1.

Applicants submit that Wills et al. fails to remedy the deficiencies of Yeong et al. Like Yeong et al., Wills et al. fails to disclose or suggest control means for controlling the search means to request an additional search for additional attribute information of the device, in accordance with a recognition result of the recognition means. Instead, Wills et al. is understood to disclose mapping resource attributes to a predetermined number of multicast addresses. In contrast, the apparatus of Claim 1 includes a two-stage search system for outputting an appropriate search result.

Accordingly, Applicants submit that Claim 1 is patentable over the cited art, and respectfully request withdrawal of the rejection under 35 U.S.C. § 103(a). Independent Claims 9 and 17 are method and storage medium claims corresponding to Claim 1, and are believed to be patentable for at least the same reasons as discussed above.

The aspect of the present invention set forth in Claim 6 is directed to a device searching apparatus that searches for at least one device on a network. The apparatus includes management means, input means, search means, output means, control means, and

discrimination means. The management means manages a database that includes identification information for identifying a device on the network and static information associated with the device. The input means enters a search condition about a device function, so that a desired device on the network may be searched for. The search means searches for a device from the database that satisfies the search condition, and the output means outputs a search result that includes identification information and static information of a device that satisfies the search condition. The control means adds dynamic information to the search result, according to a number of devices that satisfy the search condition. The discrimination means discriminates a device with a high frequency of use, based on the dynamic information, which relates to a use history of devices on the network. In a case in which the number of devices that satisfy the search condition is zero, the control means adds to the search result information of the device with a high frequency of use discriminated using the discrimination means.

Applicants submit that neither Yeong et al. nor Wills et al., considered separately or in combination, discloses or suggests a device search apparatus that includes "control means for adding dynamic information to the search result, according to a number of devices that satisfy the search condition," and "discrimination means for discriminating a device with a high frequency of use, based on the dynamic information, which relates to a use history of devices on the network," wherein, "in a case in which the number of devices that satisfy the search condition is zero, said control means adds to the search result information of the device with a high frequency of use discriminated using said discrimination means," as recited in Claim 6.

The discrimination feature of Claim 6 corresponds to the subject matter of canceled Claim 8. The Office Action concedes that Yeong et al. fails to disclose the discrimination means of Claim 8, but states that Wills et al. "discloses the use of a query language," and alleges that the "query language can be used to structure a condition that applies to the claimed condition." The Office Action goes on to state that "it would have been obvious to a person of ordinary skill in the art to return a default service or device if none of the services or results match the attributes requested by the user. One of ordinary skill in the art would have been motivated to do this because it would enable a user to continue execution of a process despite the fact that they are no devices that have all the attributes that match."

Applicants respectfully submit that the query language disclosed in Wills et al. is not equivalent to or suggestive of the discrimination feature of Claim 6, in which a device with a high frequency of use is discriminated. Applicants respectfully request the Examiner to point out where in Wills et al. there is even a suggestion that the query language can relate to the discrimination feature of Claim 6. It is now well settled that the mere fact that references *can* be modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. In re Mills, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990). MPEP 2143.01. Although a prior art device "may be capable of being modified to run the way the apparatus is claimed, there must be a suggestion or motivation in the reference to do so." In re Mills at 682. MPEP 2143.01. In the case of Claim 6, the Office Action provides as motivation for the discrimination feature of Claim 8 that "it would enable a user to continue execution of a process despite the fact that they are no devices that have all the attributes that

match." It is unclear why a person of ordinary skill would, as alleged in the Office Action, naturally include the discrimination feature of Claim 8, in which a device with a high frequency of use is discriminated, instead of, for example, including a feature in which the first available device or a most recently used device is discriminated. Therefore, Applicants can only conclude that impermissible hindsight was used in rejecting Claim 8, the subject matter of which has been incorporated into Claim 6.

Accordingly, Applicants submit that Claim 6 is patentable over a combination of Yeong et al. and Wills et al., and respectfully request withdrawal of the rejection under 35 U.S.C. § 103(a). Independent Claims 14 and 22 are method and storage medium claims corresponding to Claim 6, and are believed to be patentable for at least the same reasons as discussed above.

The other rejected claims in this application depend from one or another of the independent claims discussed above and, therefore, are submitted to be patentable for at least the same reasons. Since each dependent claim is also deemed to define an additional aspect of the invention, individual reconsideration of the patentability of each claim on its own merits is respectfully requested.


In view of the foregoing amendments and remarks, Applicants respectfully request favorable reconsideration and early passage to issue of the present application.

No petition to extend the time for response to the Office Action is deemed necessary for the present Amendment. If, however, such a petition is required to make this Amendment timely filed, then this paper should be considered such a petition and the

Commissioner is authorized to charge the requisite petition fee to Deposit Account 06-1205.

Applicants' undersigned attorney may be reached in our New York Office by telephone at (212) 218-2100. All correspondence should continue to be directed to our address listed below.

Respectfully submitted,

  
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VERSION WITH MARKINGS TO SHOW CHANGES MADE TO SPECIFICATION

*The paragraph starting on page 10, line 18, and ending on page 11, line 23, has been amended as follows:*

--In the following there will be explained the function of the device searching server 112 with reference to flow charts in Figs. 4 and 5. Fig. 4 is a flow chart showing the function of the device searching server 112. The discrimination and execution in this process are achieved, as a hardware, by a CPU 201 in the device searching server. When the device searching server 112 is activated, a step S401 opens a reception port for receiving a device searching request from a device searching client. When a search request is received from the device searching client in this operation, the operating system issues a reception event, whereby the reception of the search request is informed to the program. Then a step S402 awaits information of any [even] event from the operating system. When any event is informed, such event is acquired and the sequence proceeds to a next step. A next step S403 discriminates whether the event acquired in the step S402 is a system shutdown event. If so, a step S408 closes the reception port and the sequence is terminated. If the step S403 identifies that the acquired event is not a shutdown event, a step S404 discriminates whether the event is an event of receiving an inquiry from the device searching client. If so, a step S405 refers to the database shown in Fig. 3 and the inquiry condition, thereby selecting an appropriate device. Then a step S406 returns the search result obtained in the step S405 to the device searching client. On the

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other hand, if the step S404 identifies that the event is not an inquiry reception event, a step S407 executes a process other than the shutdown event or the inquiry reception event, such as an image renewal.--

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VERSION WITH MARKINGS TO SHOW CHANGES MADE TO CLAIMS

1. (Amended) A device searching apparatus [for searching a] that searches for at least one device on a network, comprising:

management means for managing a database [including] that includes identification information for identifying [the] a device on the network and attribute information associated [thereto] therewith;

input means for entering a search condition [for searching] about a device function in order to search for a desired device on the network;

search means for searching for a device [matching] from the database that satisfies the [entered] search condition [from said database] entered using said input means;

recognition means for recognizing whether a number of devices that satisfy the search condition is greater than a predetermined number;

output means for outputting[, on a device matching the entered search condition,] a search result [including the] that includes identification information and [the] attribute information of [such] a device that satisfies the search condition; and

control means for controlling [the information to be outputted to] said search [result, according to the number of the device matching the entered search condition] means to request an additional search for additional attribute information of the device, in accordance with a recognition result of said recognition means.

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2. (Amended) An apparatus according to claim 1, wherein [said control means is adapted, in case the number of the devices outputted in said search result is at least equal to a predetermined value, to add additional information on each of the devices outputted by said search result, to said search result] a volume of attribute information outputted by said output means when said recognition means recognizes that the number of devices that satisfy the search condition is more than the predetermined number is greater than a volume of attribute information outputted by said output means when said recognition means recognizes that the number of devices that satisfy the search condition is less than the predetermined number.

3. (Amended) An apparatus according to claim 2, further comprising:  
communication means for acquiring device information, registered corresponding to [said] identification information in another apparatus on [said] the network, from [said another] the other apparatus[;],

wherein said control means [is adapted to acquire, by] controls said communication means[, ] to acquire additional information on each [of the devices] device [outputted by said] identified in the search result, and [to add said] causes the additional information to [said] be added to the search result.

4. (Amended) An apparatus according to claim 3, wherein said control means is adapted to acquire, from an apparatus [managing] that manages location information of [the] devices on [said] the network, [the] location information of each [of the devices outputted by

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said] device identified in the search result, and to add [said] the location information to [said] the search result.

5. (Amended) An apparatus according to claim 3, wherein said control means is adapted to acquire, from an apparatus [managing] that manages charge information of [the] devices on [said] the network, [the] charge information of each [of the devices outputted by said] device identified in the search result, and to add [said] the charge information to [said] the search result.

6. (Amended) A device searching apparatus [for searching a] that searches for at least one device on a network, comprising:

management means for managing a database [including] that includes identification information for identifying [the] a device on the network and static information associated [thereto] therewith;

input means for entering a search condition about a device function in order to search for [searching] a desired device on the network[:];

search means for searching for a device [matching] from the database that satisfies the [entered] search condition [from said database] entered using said input means;

output means for outputting[, on a device matching the entered search condition,] a search result [including the] that includes identification information and [the] static information of [such] a device that satisfies the search condition; [and]

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control means for adding dynamic information to [said] the search result,  
according to [the] a number of [the device matching] devices that satisfy the [entered] search  
condition; and

discrimination means for discriminating a device with a high frequency of use,  
based on the dynamic information, which relates to a use history of devices on the network,

wherein, in a case in which the number of devices that satisfy the search condition  
is zero, said control means adds to the search result information of the device with a high  
frequency of use discriminated using said discrimination means.

7. (Amended) An apparatus according to claim 6, wherein [said control means is  
adapted], in a case [the] in which a number of [the] devices [outputted] identified in [said] the  
search result is at least equal to a predetermined value, said control means is adapted to acquire  
dynamic information from [the] a device [matching] that satisfies the [entered] search condition  
and to add [said] the dynamic information to [said] the search result.

Claim 8 has been canceled.

9. (Amended) A device searching method for searching [a] for at least one device  
on a network, comprising steps of:

managing a database [including] that includes identification information for  
identifying [the] a device on the network and attribute information associated [thereto] therewith;

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entering a search condition about a device function in order to search for  
[searching] a desired device on the network;  
searching for a device [matching] from the database that satisfies the [entered]  
search condition [from said database] entered in said entering step;  
recognizing whether a number of devices that satisfy the search condition is  
greater than a predetermined number;  
outputting[, on a device matching the entered search condition,] a search result  
[including the] that includes identification information and [the] attribute information of [such] a  
device that satisfies the search condition; and  
controlling [the information to be outputted to said search result, according to the  
number of the device matching the entered search condition] said searching step to request an  
additional search for additional attribute information of the device, in accordance with a  
recognition result of said recognizing step.

10. (Amended) A method according to claim 9, wherein [said control step is  
adapted, in case the number of the devices outputted in said search result is at least equal to a  
predetermined value, to add additional information on each of the devices outputted by said  
search result, to said search result] a volume of attribute information outputted in said outputting  
step when said recognizing step recognizes that the number of devices that satisfy the search  
condition is more than a predetermined number is greater than a volume of attribute information  
outputted in said outputting step when said recognizing step recognizes that the number of

devices that satisfy the search condition is less than the predetermined number.

11. (Amended) A method according to claim 10, further comprising a step of:  
receiving device information, registered corresponding to [said] identification  
information in another apparatus on [said] the network, from [said another] the other  
apparatus[;],

wherein said [control] controlling step [is adapted to acquire, by] controls said  
[reception] receiving step[,], to acquire additional information on each [of the devices outputted  
by said] device identified in the search result, and [to add said] causes the additional information  
to [said] be added to the search result.

12. (Amended) A method according to claim 11, wherein said [control]  
controlling step [is adapted to acquire] includes acquiring, from an apparatus [managing] that  
manages location information of [the] devices on [said] the network, [the] location information  
of each [of the devices outputted by said] device identified in the search result, and [to add said]  
adding the location information to [said] the search result.

13. (Amended) A method according to claim 11, wherein said [control]  
controlling step [is adapted to acquire] includes acquiring, from an apparatus [managing] that  
manages charge information of [the] devices on [said] the network, [the] charge information of  
each [of the devices outputted by said] device identified in the search result, and [to add said]



adding the charge information to [said] the search result.

14. (Amended) A device searching method for searching [a] for at least one device on a network, comprising steps of:

managing a database [including] that includes identification information for identifying [the] a device on the network and static information associated [thereto] therewith;

entering a search condition about a device function in order to search for [searching] a desired device on the network;

searching for a device [matching] from the database that satisfies the [entered] search condition [from said database] entered in said entering step;

outputting[, on a device matching the entered search condition,] a search result [including the] that includes identification information and [the] static information of [such] a device that satisfies the search condition; [and]

adding dynamic information to [said] the search result, according to [the] a number of [the device matching the entered] devices that satisfy the search condition; and

discriminating a device with a high frequency of use, based on the dynamic information, which relates to a use history of devices on the network,

wherein, in a case in which the number of devices that satisfy the search condition is zero, said adding step adds information of the device with a high frequency of use discriminated in said discriminating step to the search result.

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15. (Amended) A method according to claim 14, wherein [said control step is adapted], in a case [the] in which a number of [the] devices [outputted in said] identified in the search result is at least equal to a predetermined value, [to acquire] said adding step includes acquiring dynamic information from [the] a device [matching the entered] that satisfies the search condition and [to add said] adding the dynamic information to [said] the search result.

Claim 16 has been canceled.

17. (Amended) A memory medium storing a computer program to be executed by a computer [of] to implement a device searching [apparatus] method for searching [a] for at least one device on a network, the [computer program] method comprising steps of:

managing a database [including] that includes identification information for identifying [the] a device on the network and attribute information associated [thereto] therewith;

entering a search condition about a device function in order to search for [searching] a desired device on the network;

searching for a device [matching] from the database that satisfies the [entered] search condition [from said database] entered in the entering step;

recognizing whether a number of devices that satisfy the search condition is greater than a predetermined number;

outputting[, on a device matching the entered search condition,] a search result [including the] that includes identification information and [the] attribute information of [such]

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device that satisfies the search condition; and

controlling [the information to be outputted to said search result, according to the number of the device matching the entered search condition] the searching step to request an additional search for additional attribute information of the device, in accordance with a recognition result of the recognizing step.

18. (Amended) A memory medium according to claim 17, wherein [said control step is adapted, in case the number of the devices outputted in said search result is at least equal to a predetermined value, to add additional information on each of the devices outputted by said search result, to said search result] a volume of attribute information outputted in the outputting step when the recognizing step recognizes that the number of devices that satisfy the search condition is more than a predetermined number is greater than a volume of attribute information outputted in the outputting step when the recognizing step recognizes that the number of devices that satisfy the search condition is less than the predetermined number.

19. (Amended) A memory medium according to claim 18, wherein the [computer program] method further comprises a step of:

receiving device information, registered corresponding to [said] the identification information in another apparatus on [said] the network, from [said another] the other apparatus[;].

wherein [said control] the controlling step [is adapted to acquire, by said

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reception] controls the receiving step[,] to acquire additional information on each [of the devices outputted by said] device identified in the search result, and to add [said] the additional information to [said] the search result.

20. (Amended) A memory medium according to claim 19, wherein [said control] the controlling step [is adapted to acquire] includes acquiring, from an apparatus [managing] that manages location information of [the] devices on [said] the network, [the] location information of each [of the devices outputted by said] device identified in the search result, and [to add said] adding the location information to [said] the search result.

21. (Amended) A memory medium according to claim 19, wherein [said control] the controlling step [is adapted to acquire] includes acquiring, from an apparatus [managing] that manages charge information of [the] devices on [said] the network, [the] charge information of each [of the devices outputted by said] device identified in the search result, and [to add said] adding the charge information to [said] the search result.

22. (Amended) A memory medium storing a computer program to be executed by a computer [of] to implement a device searching [apparatus] method for searching [a] for at least one device on a network, the [computer program] method comprising steps of:

managing a database [including] that includes identification information for identifying [the] a device on the network and static information associated [thereto] therewith;

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entering a search condition about a device function in order to search for  
[searching] a desired device on the network;  
searching for a device [matching] from the database that satisfies the [entered]  
search condition [from said database] entered in the entering step;  
outputting[, on a device matching the entered search condition,] a search result  
[including the] that includes identification information and [the] static information of [such] a  
device that satisfies the search condition; [and]  
adding dynamic information to [said] the search result, according to [the] a  
number of [the device matching the entered] devices that satisfy the search condition; and  
discriminating a device with a high frequency of use, based on the dynamic  
information, which relates to a use history of devices on the network,  
wherein, in a case in which the number of devices that satisfy the search condition  
is zero, the adding step adds information of the device with a high frequency of use discriminated  
in the discriminating step to the search result.

23. (Amended) A memory medium according to claim 22, wherein [said control  
step is adapted], in a case [the] in which a number of [the] devices [outputted in said] identified  
in the search result is at least equal to a predetermined value, [to acquire] the adding step  
includes acquiring dynamic information from [the] a device [matching the entered] that satisfies  
the search condition and [to add said] adding the dynamic information to [said] the search result.

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Claim 24 has been canceled.

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